

PE NUMBER: 0305182F

UNCLASSIFIED

PE TITLE: Spacelift Range System

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0305182F Spacelift Range System				PROJECT 4137		
COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
4137 Range Standardization and Automation (RSA)	31,736	24,457	43,186	49,130	42,747	44,004	49,701	50,521	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

Two national ranges, the Eastern Range (ER) at Patrick AFB, FL, and the Western Range (WR) at Vandenberg AFB, CA, provide tracking, telemetry, range safety communications, command/control and other support capabilities necessary to safely conduct civil, commercial, and national security spacelift operations, ballistic missile test and evaluations, and a variety of aeronautical and guided weapons tests. Range assets are based on 1950s/1960s technologies and are arrayed in a highly inefficient, manpower-intensive architecture. Range instrumentation reliability is deteriorating and many of the components are obsolete and unsupportable. The ranges do not provide the responsiveness and flexibility to support the nation's growing spacelift needs. Replacement of the aging systems is a necessity.

Ongoing Range Standardization and Automation (RSA) efforts will substantially overhaul and modernize the ER and the WR, treating the two as a single integrated Spacelift Range System (SLRS). RSA will develop the integrated SLRS using remote control and automation techniques to reduce the number of required operators, sites, and facilities. The result will be an SLRS reconfigurable from one major operation to another in hours versus days, costing 20% less to operate and maintain than current ranges, and supportable through existing Air Force logistics infrastructure and standard practices.

Beginning in FY 2000, the sustainment responsibility for the SLRS will migrate from Air Force Space Command (AFSPC) to Air Force Material Command (AFMC). To effect this change and satisfy remaining systems development and integration requirements, AFMC will award a consolidated SLRS Contract (SLRSC).

The primary objectives throughout all of these efforts are to preserve and enhance SLRS safety, provide more reliable and responsive operations, continue the standardization of the SLRS, and continue life cycle cost reduction.

(U) FY 1998 (\$ in Thousands):

- (U) \$7,968 Continued RSA Phase I: Completed design/began integration of Consolidated Telemetry Processing System (CTPS). Funded SATCOM lease.
- (U) \$22,432 Continued RSA Phase IIA: Continued control and display product item development. Began conversion of communications network infrastructure to a seamless, multipath system, including network controllers and GPS-based timing. Began work on interim flight safety program for ER.
- (U) \$1,336 Provided program support for System Program Office.
- (U) \$31,736 Total

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(U) FY 1999 (\$ in Thousands):

- (U) \$7,799 Complete RSA Phase I: Complete integration of CTPS. Complete RSA Phase I test and evaluation.
- (U) \$13,902 Continue RSA Phase IIA: Continue Control & Display integration and test for operational turnover; continue development of communications network including network core. Begin development of voice, video and data network modernization. Begin development of the GPS metric tracking system for the ER & WR, which replaces the O&M-intensive radars. Continue work on the interim flight safety program for the ER Operations Control Center.
- (U) \$1,955 Provide program support for Systems Program Office
- (U) \$801 Identified as a source for SBIR.
- (U) \$24,457 Total

(U) FY 2000 (\$ in Thousands):

- (U) \$36,131 Continue RSA Phase IIA: Continue Control & Display integration and test for operational turnover; continue development of GPS for metric tracking. Continue development of voice, video and data network modernization. Complete the interim flight safety program for the ER Operations Control Center. Begin development of the ER & WR flight safety analysis tool as well as the command destruct system and begin integration of the RSA I CTPS sub-system into the RSA Phase IIA architecture.
- (U) \$4,939 Begin Space Lift Range System Contract (SLRS). Assess AFSPC's down-range instrumentation requirements and commercial products available to satisfy these requirements. Begin related design efforts.
- (U) \$2,116 Provide program support for Systems Program Office
- (U) \$43,186 Total

(U) FY 2001 (\$ in Thousands):

- (U) \$40,663 Continue RSA Phase IIA: Continue development of the command destruct system and GPS for metric tracking. Continue development of communications network including network core. Continue development of voice, video and data network modernization. Continue development of ER & WR flight safety analysis tool and integration of the RSA Phase I CTPS sub-system into the RSA Phase IIA architecture. Begin development of the pre-planned upgrade to the Control & Display segment providing increased range safety functionality and post-operation data processing.
- (U) \$6,182 SLRSC: Continue assessment of existing commercial off the shelf solutions for applicability to down-range instrumentation requirements and conduct of related design efforts. Begin development of automated instrumentation for the SLRS Operations Control Centers.
- (U) \$2,285 Provide program support for Systems Program Office
- (U) \$49,130 Total

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<p>(U) B. <u>Budget Activity Justification:</u></p> <p>These efforts are categorized as Budget Activity 7, Operational Systems Development, because they upgrade existing operational capabilities with new systems. Funding for RSA and SLRSC design and integration for both ER and WR is consolidated in this program element to support the integrated SLRS approach. Associated procurement funding for the RSA and SLRSC efforts is under this same program element in the Other Procurement, Air Force, appropriation.</p> <p>(U) C. <u>Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 10%; text-align: right;"><u>FY 1998</u></th> <th style="width: 10%; text-align: right;"><u>FY 1999</u></th> <th style="width: 10%; text-align: right;"><u>FY 2000</u></th> <th style="width: 10%; text-align: right;"><u>FY 2001</u></th> <th style="width: 20%; text-align: right;"><u>Total</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 1999 PB)</td> <td style="text-align: right;">32,018</td> <td style="text-align: right;">24,578</td> <td style="text-align: right;">49,572</td> <td style="text-align: right;">44,465</td> <td style="text-align: right;">Continuing</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">34,186</td> <td style="text-align: right;">24,578</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General</td> <td style="text-align: right;">-1305</td> <td style="text-align: right;">-121</td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. SBIR</td> <td style="text-align: right;">-868</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus and other Above Threshold</td> <td style="text-align: right;">-218</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogramming</td> <td style="text-align: right;">-59</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 1999 PB</td> <td></td> <td></td> <td style="text-align: right;">-6,386</td> <td style="text-align: right;">+4,665</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2000 PB</td> <td style="text-align: right;">31,736</td> <td style="text-align: right;">24,457</td> <td style="text-align: right;">43,186</td> <td style="text-align: right;">49,130</td> <td style="text-align: right;">Continuing</td> </tr> </tbody> </table> <p>(U) Significant Program Changes: FY 1999: \$801 identified as a source for SBIR. FY 2000 and FY 2001 adjustments rephase funding to support changes in planned work for RSA Phase IIA.</p> <p>(U) D. <u>Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;"></th> <th style="width: 8%; text-align: right;"><u>FY 1998</u></th> <th style="width: 8%; text-align: right;"><u>FY 1999</u></th> <th style="width: 8%; text-align: right;"><u>FY 2000</u></th> <th style="width: 8%; text-align: right;"><u>FY 2001</u></th> <th style="width: 8%; text-align: right;"><u>FY 2002</u></th> <th style="width: 8%; text-align: right;"><u>FY 2003</u></th> <th style="width: 8%; text-align: right;"><u>FY 2004</u></th> <th style="width: 8%; text-align: right;"><u>FY 2005</u></th> <th style="width: 10%; text-align: right;"><u>To Complete</u></th> <th style="width: 10%; text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Other Procurement, AF, BA 03, P-68, Eastern/Western Range I&M Space *</td> <td style="text-align: right;">75,118</td> <td style="text-align: right;">93,552</td> <td style="text-align: right;">83,410</td> <td style="text-align: right;">98,625</td> <td style="text-align: right;">156,910</td> <td style="text-align: right;">149,241</td> <td style="text-align: right;">156,193</td> <td style="text-align: right;">167,362</td> <td style="text-align: right;">Continuing</td> <td style="text-align: right;">Continuing</td> </tr> <tr> <td>(U) MILCON, AF, Project XUMU983004, Launch Operations Control Center **</td> <td style="text-align: right;">26,876</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: right;">26,876</td> </tr> </tbody> </table> <p>(U) <u>Related RDT&E</u>: Not Applicable.</p> <p style="margin-left: 40px;">* FY 2000 through FY 2003 amounts are higher than previously shown, because they now include initial spares funding for the RSA Phase IIA contract as a pilot program under the Reengineered Supply Support Program.</p> <p style="margin-left: 40px;">** FY 1998 MILCON funds are in PE 0305181F for the Western Range Operations Control Center.</p>										<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total</u>	(U) Previous President's Budget (FY 1999 PB)	32,018	24,578	49,572	44,465	Continuing	(U) Appropriated Value	34,186	24,578				(U) Adjustments to Appropriated Value						a. Congressional/General	-1305	-121				b. SBIR	-868					c. Omnibus and other Above Threshold	-218					d. Below Threshold Reprogramming	-59					(U) Adjustments to Budget Years Since FY 1999 PB			-6,386	+4,665		(U) Current Budget Submit/FY 2000 PB	31,736	24,457	43,186	49,130	Continuing		<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Complete</u>	<u>Total Cost</u>	(U) Other Procurement, AF, BA 03, P-68, Eastern/Western Range I&M Space *	75,118	93,552	83,410	98,625	156,910	149,241	156,193	167,362	Continuing	Continuing	(U) MILCON, AF, Project XUMU983004, Launch Operations Control Center **	26,876									26,876
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(U) **E. Acquisition Strategy:**

The RSA Phase I contract was competitively awarded in FY 1993 to provide interconnection between major ER stations at Antigua and Ascension Islands and the ER Operations Control Center via a satellite communications network; to standardize and centralize telemetry processing for the ER and WR; and to modernize and automate the Cape Canaveral Communications Network. RSA Phase I ends in FY 1999. The RSA Phase IIA contract was competitively awarded in FY 1996 to provide a top-down systems approach which produces a standardized SLR architecture. It modernizes range safety, data processing, communications, command and control, meteorological, and imaging systems. RSA Phase IIA will end in FY 2006.

In addition to RSA Phases I and IIA, other contracts upgrading and sustaining the ER and WR include multiple improvement and modernization (I&M) or recapitalization contracts to modify or replace existing range systems, as well as AFSPC's operations, maintenance, and sustainment contracts at each range. The government is the de facto integrator of all of these efforts. Per mutual agreement, beginning in FY 2000, the sustainment responsibility for the SLR System will migrate from AFSPC to AFMC.

To execute its expanded responsibilities for the SLR System, AFMC will employ the SLRSC to consolidate remaining development efforts with integration and sustainment functions under one contractor. The SLRSC will develop and procure automated down-range instrumentation originally planned for a follow-on RSA phase. Additionally, it will execute recapitalization projects previously funded under I&M programs to replace obsolete and unsupportable systems. Finally, it will provide sustainment functions, including those transferred from AFSPC as part of the logistics standardization effort.

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(U) F. <u>Schedule Profile</u>																
		<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RSA Phase I																
- SATCOM Installation *																
- CTPS Installation/Checkout *																
- Cape Fiber Optic Network Installation *																
- System DT&E X																
- Operational T&E X																
- System Turnover X																
RSA Phase IIA																
- RDI-1 Software Design Review Confirmation *																
- RDI-1 Early Scheduling Tool Set for Automated Ranges Test Phase X																
- RDI-1 Product Development T&E Complete X																
- RDI-1 System Integration Test Complete X																
- RDI-1 ER Combined DT&E & IOT&E X																
- RDI-1 WR Combined DT&E & IOT&E X																
- RDI-2 Network Core WR Qualification Testing complete X																
- RDI-2 Network Manager WR Qualification Testing complete X																
- RDI-2 Network Timing ER & WR Qualification Testing complete X																
SLR System Contract																
- Acquisition Strategy Panel X																
- Contract Award X																
* = completed event; X = planned event																
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1999					
BUDGET ACTIVITY 7 - Operational System Development			PE NUMBER AND TITLE 0305182F Spacelift Range System			PROJECT 4137					
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>											
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>							
RSA Phase I Contract	\$7,968	\$7,799	0	0							
RSA Phase IIA Contract	\$22,432	\$13,902	\$36,131	\$40,663							
SLR System Contract	0	0	\$4,939	\$6,182							
Program Support	\$1,336	\$1,955	\$2,116	\$2,285							
Identified as a source for SBIR		\$801									
Total	\$31,736	\$24,457	\$43,186	\$49,130							
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
<u>Performing Organizations:</u>											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligat'n Date	Performin g Activity EAC	Project Office EAC	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	To Complete	Total Program
Identified as a source for SBIR						801					
<u>Product Development Organizations</u>											
Harris Corp/ Loral RSA Phase I)	C/CPAF	Jun 93	93,859	93,859	78,347	7,968	7,799	0	0	0	94,114
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	
										February 1999	
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
7 - Operational System Development					0305182F Spacelift Range System					4137	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligat'n Date	Performin g Activity EAC	Project Office EAC	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	To Complete	Total Program
Lockheed Martin (RSA Phase IIA)	C/CPAF	Nov 95	166,521	166,521	33,871	22,432	13,902	36,131	40,663	130,520	277,519
Harris Corp. (ROCC Eng'r Services)	SS/CPAF	Apr 94	23,852	23,852	23,852	0	0	0	0	0	23,852
Various (Other RSA)	Various	Various	N/A	N/A	2,913	0	0	0	0	0	2,913
Unknown (SLRSC)	TBD	Jul 99	TBD	TBD	0	0	0	4,939	6,182	TBD	TBD
<u>Support and Management Organizations</u>											
Mission Support	Various	Various	N/A	N/A	10,021	1,336	1,955	2,116	2,285	Cont.	Cont.
<u>Test and Evaluation Organizations</u>											
N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0	0
Government Furnished Property: GFP determination is ongoing as work progresses on each RSA Phase IIA delivery increment. The current 1000+ item GFP list is too large to be included with this document. It is available upon request.											
Identified as a source for SBIR							801				
Subtotal Product Development					138,983	30,400	21,701	41,070	46,845	TBD	TBD
Subtotal Support and Management					10,021	1,336	1,955	2,116	2,285	Cont.	Cont.
Subtotal Test and Evaluation					N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Project					149,004	31,736	24,457	43,186	49,130	Cont.	Cont.
Project 4137											
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